

REMARKS

Claims 1, 3-10, 12-19, 21-31 and 33-42 are pending in this application. By this Amendment, claims 1, 10, 12, 13, 19, 28-31, 34 and 35 are amended and claims 41 and 42 are added. The claim amendments introduce no new matter. Claims 2, 11, 20 and 32 are canceled without prejudice to, or disclaimer of, the subject matter recited in those claims. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Chang during the September 7, 2007 telephone interview. Applicants' separate record of a summary of the substance of the telephone interview is contained in the following remarks.

The Office Action makes final the February 28, 2007 Election of Species Requirement, in response to which Applicants provisionally elected Species B. Claims 10-18, 29, 31-35 and 39 were asserted as being readable on the elected species. Applicants election was made with traverse. The Office Action, in paragraph 3, withdraws from consideration claims 36-40 as allegedly drawn to non-elected subject matter. In reply to the February 28, 2007 Election of Species Requirement, Applicants amended the claims to include these added claims. Applicants further asserted that claims 36, 37 and 39 read on elected Species B and that claims 36 and 37 were generic to all species. By this Amendment, generic claims 41 and 42 are added. Further, claims 1, 10 and 19 are amended to depend from generic claim 41 and claims 28-30 are amended to depend from generic claim 42. Applicants respectfully request consideration of the identified generic claims, and rejoinder of the non-elected claims, in view of the following remarks.

The Office Action, in paragraph 3, asserts that claims 36-40 are drawn to subject matter that is mutually exclusive from the elected Species B. This assertion is incorrect. The subject

matter of independent claim 36 is directed toward a hologram recording method for rewriting a second hologram on a hologram recording medium in which a first hologram is recorded. Now-dependent claim 10, drawn to the subject matter of elected Species B, recites, among other features, each page of the hologram is newly recorded at a recording position different from a recording position of each page of a hologram previously recorded in the optical recording medium. Now-dependent claims 29 and 31, also drawn to elected Species B, and added independent claims 41 and 42 recite similar features. Independent claims 31, 36, 41 and 42, then, recite subject matter drawn to a hologram recording method for recording a hologram on a previously recorded optical recording medium.

For at least this reason, claims 36, 37, 41 and 42 are generic to all Species. Because a first action on the merits had not been completed at the time of adding, and electing, generic claims 36 and 37, the Office Action's withdrawal of these claims is improper. Further, as Applicants have identified a generic claim, rejoinder of the non-elected claims is respectfully requested upon allowance of any generic claim.

During the September 7 telephone interview, Applicants' representative presented to the Examiner the arguments discussed above. Agreement was not reached regarding this issue.

The Office Action, in paragraph 8, objects to claims 13 and 35 for informalities. Specifically, the Office Action asserts that the phrase "polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of newly recording each page of the hologram are caused to be orthogonal to each other" is confusing and indefinite. The Office Action further asserts that it is not clear if the polarization states are orthogonal at the location of the optical recording medium or otherwise. This objection is respectfully traversed.

Claims 13 and 35 recite, among other features, a polarization direction of the signal light beam and a polarization direction of the reference light beam at the time newly recording each page of the hologram are orthogonal to each other when a polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of recording each

page of the hologram previously recorded in the optical recording medium are parallel to each other. The Office Action's analysis, in paragraph 8, fails to give the subject matter recited in claims 13 and 35 broadest reasonable construction or its plain meaning. For example, the Office Action asserts that if the above-quoted feature refers to a reference light beam and a signal light beam before reaching the optical recording medium, then no optical means has been provided to ensure that the polarization states are parallel to each other at the recording medium. However, the subject matter recited in claims 13 and 35 is not directed to ensure that the polarization states are parallel to each other at the recording medium. Claims 13 and 35, as indicated above, recite a polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of newly recording each page of the hologram are orthogonal to each other when a polarization direction of the signal light beam and a polarization of the reference light beam at the time of recording each page of the hologram previously recorded in the optical recording medium are parallel to each other. Applicants' specification clearly supports these features at, at least, page 11 lines 1-17.

During the September 7 telephone interview, Applicants' representative presented to the Examiner the arguments discussed above. The Examiner indicated that further consideration of these arguments would be required after the filing of a formal response. Applicants maintain that, for at least the foregoing reason, there is nothing ambiguous or indefinite in the recited features. Withdrawal of the objection to claims 13 and 35 is respectfully requested.

The Office Action, in paragraph 6, rejects claims 12, 13 and 31-35 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, with respect to claims 12, 13, 34 and 35, the Office Action asserts that the specification and claims fail to enable one of ordinary skill in the art to understand "caused to be orthogonal," "caused to be different" or "caused to be parallel." Without conceding the propriety of this rejection, as indicated during the September 7 telephone interview, Applicants amend claims 12, 13, 34 and

35 to obviate this rejection. Accordingly, reconsideration and withdrawal of these rejection are respectfully requested.

With respect to claim 31, the Office Action asserts that it is not clear where "reproduced light beam" is applied by the subject matter of this claim. Specifically, the Office Action asserts that it is unclear where a reproduced light beam comes from or how it could ever be used before a hologram is recorded. The subject matter of claim 31 is directed to a hologram recording apparatus for recording a hologram on a previously recorded optical recording medium. Moreover, Applicants' specification clearly discusses a reproduced light beam such that one of ordinary skill in the art would have been able to make and use the subject matter recited in claim 31 at, at least, the paragraph beginning at page 11, line 18.

During the September 7 telephone interview, Applicants' representative presented to the Examiner the arguments discussed above. Agreement was not reached regarding this issue.

In further support of the arguments discussed above, Applicants note that MPEP §2164.01, quoting *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988), states "The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation" (emphasis added). The MPEP continues "A patent need not teach, and preferably omits, what is well known in the art." *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987); and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984) (emphasis added). This standard is clearly met with regard to the above features.

Accordingly, reconsideration and withdrawal of the rejection of claim 31 are respectfully requested.

Claims 10, 29 and 31 are rejected on the grounds of nonstatutory obviousness-type double patenting over claim 4 of U.S. Patent No. 7,218,597 B2 to Yasuda et al (hereinafter "Yasuda"). The attached Terminal Disclaimer renders this rejection moot.

The Office Action, in paragraph 10, rejects claims 10, 14, 29 and 31 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,301,028 B1 to Tanaka et al. (hereinafter "Tanaka"). The Office Action, in paragraph 11, rejects claims 10, 12, 29, 31 and 34 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,721,076 B2 to King et al. (hereinafter "King"). The Office Action, in paragraph 13, rejects claims 11 and 32 under 35 U.S.C. §103(a) as being unpatentable over Tanaka. The Office Action, in paragraph 14 rejects claims 11, 13, 32, 33 and 35 under 35 U.S.C. §103(a) as being unpatentable over King. The Office Action, in paragraph 15, rejects claims 15-18 under 35 U.S.C. §103(a) as being unpatentable over King in view of U.S. Patent No. 7,129,006 B2 to Hesselink et al. (hereinafter "Hesselink"). These rejections are respectfully traversed.

The Office Action, in paragraph 10, asserts that Tanaka teaches an optical information recording and reproducing apparatus with features that are alleged to correspond to the combination of all of the features recited in claims 10, 29 and 31. This assertion is incorrect for at least the following reasons.

Tanaka does not teach, nor can it be reasonably be considered to have suggested, each page of the hologram is newly recorded in a state where a diffraction light beam intensity from each page of a hologram previously recorded in the optical recording medium is minimized, as positively recited in independent claims 41 and 42, from which claims 1, 10, 19 and 28-30 now depend. Independent claims 31 and 36 recite similar features.

Tanaka also does not teach, nor can it be reasonably be considered to have suggested, each page of the hologram is newly recorded at a recording position different from a recording position of each page of a hologram previously recorded in the optical recording medium as positively recited in claims 10, 29 and 31.

For example, Tanaka does not teach newly recorded in a state where a diffraction light beam intensity from each page of a hologram previously recorded or each page of the hologram is newly recorded at a recording position different from a recording position of each page of a hologram previously recorded. As indicated during the September 7 telephone interview, Tanaka is directed toward recording holograms at a high density such that each of the recorded holograms can be reproduced, but does not contemplate overwriting holograms without performing an erasing process effectuated by the subject matter of the pending claims. It is unreasonable to assert, for example, that Tanaka discloses each page of the hologram is newly recorded in a state where a diffraction light beam intensity from each page of a hologram previously recorded in the optical recording medium is minimized.

In response to the arguments presented above, during the September 7 personal interview, the Examiner asserted that Tanaka discloses spatial modulation that the Examiner alleges reads on the above-quoted features. Tanaka teaches a moving portion for shifting the center of a region of the holographic memory in which the signal light beam and the reference light beam intersect according to the distance between peaks of the zeroth-order and first-order diffracted light (col. 3, lines 24-30). Tanaka, however, discloses this modulation in the context of an optical information recording and reproducing apparatus using a holographic memory (Abstract). As discussed above, Tanaka does not contemplate newly recording at a recording position different from a recording position of each page of a hologram previously recorded. In fact, the limitations of Tanaka in this regard are indicated in the Applicants' discussion of the prior art at page 7, lines 1-13, of Applicants' specification. Applicants disclose that even if the new hologram overwrites the already recorded hologram, the already recorded hologram cannot be completely erased by conventional methods, such as that disclosed by Tanaka, to produce high-quality reproduced light beams. As such, it is unreasonable to assert

that Tanaka anticipates at least the combinations of all the features recited in claims 31, 36, 41 and 42.

The Office Action, in paragraph 11, asserts that King teaches a system of recording successive holograms in a recording medium with features that are alleged to correspond to the combinations of all the features recited in claims 10, 29 and 31. This assertion is also incorrect for at least the following reasons.

King, also does not teach, nor can it be reasonably be considered to have suggested, the above-quoted features recited in claims 10, 29, 31, 36, 41 and 42.

For example, as with Tanaka, King arguably discloses spatial multiplexing by recording in different locations. King, however, does not disclose each page of the hologram is newly recorded at a recording position different from a recording position of each page of the hologram previously recorded in the optical recording medium, as recited in the pending claims. King teaches, with reference to Fig. 1, a moving assembly 185 to achieve shift multiplexing with respect to signal and reference beams according to a displacement delta (col. 10, lines 49-64). King teaches that successive holograms are recorded by translating the multi-layer holographic storage medium reference and object beam along a shift multiplex direction, where the reference beam and object beam are propagated to successive areas of the photo recording medium (col. 3, lines 61-64). King, then, does not address the deficiencies discussed above with respect to Tanaka. As such, it is unreasonable to assert that King anticipates at least the combination of all the features recited in claims 10, 29, 31, 36, 41 and 42.

These arguments were discussed during the September 7 telephone interview with the Examiner. Agreement was not reached regarding these issues.

Hesselink is not applied in any manner by the Office Action to overcome the above-identified shortfalls in the application of Tanaka and King to the subject matter of the pending claims. As such, Tanaka, King and Hesselink, individually or in combination, do not teach, nor

would they have rendered obvious, at least the above-quoted features recited in claims 10, 29, 31, 36, 41 and 42.

As discussed in detail above, the subject matter of the pending claims is directed to overwriting (rewriting and recording) holograms without performing an erasing process as discussed at at least page 7, lines 8-13, of Applicants' specification. In this regard, new holograms can be reproduced with high quality even if a previously recorded hologram exists in substantially the same region. Since a new hologram is recorded when the diffraction light beam intensity of a previously recorded hologram is minimized, the new hologram can be recorded and reproduced with high quality without mixing (crosstalk) with a reproduced light beam from the recorded hologram as discussed at at least page 10, lines 14-19, and page 24, lines 18-22, of Applicants' specification. In contrast, the applied references are directed to only recording multiple holograms. Such holograms, according to the disclosures of the applied references, are not erased and recorded according to the combinations of features recited in the pending claims.

For at least the foregoing reasons, the applied references cannot reasonably be considered to teach, or to have suggested, the combinations of all of the features positively recited in claims 10, 29 and 31. Additionally, claims 12-18 and 33-35 are not taught, nor would they have been suggested, by the applied references for at least the respective dependence of these claims, directly or indirectly, on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejections of claims 10, 12-18, 29 and 32-35 under 35 U.S.C. §§102(b), (e), and 103(a) as being anticipated by, or unpatentable over, the applied references are respectfully requested.

Claim 36 is also allowable over the applied references at least because this claim recites, among other features, a hologram recording method for rewriting a second hologram on a hologram recording medium on which a first hologram is recorded. Claims 41 and 42 are also allowable over the applied references at least because these claims recite, among other features,

each page of the hologram is newly recorded in a state where a diffraction light beam intensity from each page of a hologram previously recorded in the optical recording medium is minimized. As discussed above, the applied references, individually or in combination, do not teach, nor can they reasonably be considered to have suggested, at least these features.

Accordingly, favorable consideration of generic claims 36, 41 and 42, and rejoinder of claims 1, 3-9, 19, 21-28, 30 and 37-40 are respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3-10, 12-19, 21-31 and 33-40 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:CJW/clf

Attachment:
Terminal Disclaimer

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